PERSPECTIVES PAPER

The Abuja +12 Declaration: Implications for HIV Response in Africa

Rosemary W Mburu*¹, Morenike Oluwatoyin Folayan² and Olayide Akanni³

¹World AIDS Campaign, 3 Bauhinia, 46 Arum Road, Tableview 7441 Cape Town, South Africa; ²Department of Child Dental Health and Institute of Public Health, Obafemi Awolowo University, Ile-Ife, and New HIV Vaccine and Microbicide Advocacy Society, Nigeria; ³Journalists Against AIDS (JAAIDS) Nigeria, Media Resource Centre on HIV/AIDS, 14 Fadare Street, End of Kayode Street, Ogba Lagos

*For Correspondence: E-mail: mburur@worldaidscampaign.org; Phone: +254711308858

Abstract

Heads of State and Governments of the Organization of African Unity now the African Union (AU) met in April 2001 at a Special Summit held in Abuja to address the challenges of HIV/AIDS, Tuberculosis, Malaria and other related infectious diseases in Africa. In May 2006, at the Special Summit under the theme: "Universal Access to HIV/AIDS, Tuberculosis and Malaria Services by 2010", the African Union Heads of States and Governments adopted the "Abuja Call for Accelerated Action towards Universal Access to HIV/AIDS, Tuberculosis and Malaria Services in Africa" and related commitments thus reaffirming earlier commitments. In July 2013, African leaders once again gathered in Abuja for the Abuja +12 summit, which focused on the theme 'Ownership, Accountability and Sustainability of HIV/AIDS, Tuberculosis and Malaria in Africa: Past, Present and the Future'. At the meeting, African leaders noted the tremendous progress that has been made in addressing HIV and AIDS, and made further commitments to effectively tackle the HIV epidemic on the continent. This article presents a critical look at each of these commitments and makes recommendations that would assist African countries in developing policies to end the HIV/AIDS epidemic in the region. (Afr J Reprod Health 2014; 18[3]: 34-46)

Keywords: Abuja declaration; HIV infections; combination prevention; research for preventive measures; domestic resource mobilization

Résumé

Les Chefs d'Etat et de gouvernements de l'Organisation de l'unité africaine devenue l'Union africaine (UA) se sont réunis en avril 2001, à un Sommet extraordinaire tenu à Abuja pour relever les défis du VIH / SIDA, de la tuberculose, du paludisme et d'autres maladies infectieuses connexes en Afrique. En mai 2006, lors du Sommet extraordinaire sur le thème: «Accès universel aux services du VIH / SIDA, de la tuberculose et du paludisme d'ici 2010", les chefs d'Etats et de gouvernements de l'Union africaine ont adopté l' «Appel d'Abuja pour une action accélérée vers l'accès universel aux services du VIH / SIDA, de la tuberculose et du paludisme en Afrique » et les engagements connexes réaffirmant ainsi ses engagements antérieurs. En juill et 2013, les dirigeants africains se sont réunis une fois de plus à Abuja pour le sommet d'Abuja +12, qui portait sur le thème «La propriété, la responsabilité et la durabilité du VIH / SIDA, de la tuberculose et du paludisme en Afrique: le passé, le présent et l'avenir». Lors de la réunion, les dirigeants africains ont noté les progrès considérables qui ont été accomplis dans la lutte contre le VIH et le sida, et ont pris des engagements supplémentaires sur un certain nombre de questions dans les moyens de lutter efficacement contre l'épidémie du VIH sur le continent. Cet article présente un regard critique sur chacun de ces engagements et fait des recommandations qui aideraient les pays africains à élaborer des politiques pour mettre fin à l'épidémie du VIH / SIDA dans la région. (*Afr J Reprod Health 2014; 18[3]: 34-46*)

Mots-clés: Déclaration d'Abuja, infections du VIH, prévention de la combinaison, recherche de mesures préventives, mobilisation des ressources

Introduction

There has been exciting developments in HIV prevention research and treatment over the last four years. For the first time, clinical trials of candidate HIV vaccine, microbicides and pre-exposure prophylaxis showed encouraging levels of efficacy¹⁻⁵. With the striking success of the

HPTN 052 trial⁶, early initiation of antiretroviral (ARV) treatment seems poised to join condoms, partner reduction, use of clean syringes and needles and voluntary medical male circumcision in the toolbox of comprehensive combination prevention. There has also been increased focus on research to drive evidence-based decision-making in policies and programmes to combat AIDS,

African Journal of Reproductive Health September 2014 (Special Edition); 18(3): 34

Tuberculosis, and Malaria (ATM) across Africa. Recent evidence of the protective effect of male circumcision for HIV prevention⁷⁻⁹ has led to the scaling up of its implementation in 13 member states¹⁰. Ongoing research is still required to learn how the use of antiretroviral for HIV prevention can be made available to populations most in need, including demonstration projects on the real life use of pre-exposure prophylaxis¹¹⁻¹³ and microbicides^{14,15}.

With the emergence of extremely drug resistant (XDR) tuberculosis in high-HIV-burden areas across Africa¹⁶, the need for rapid culture confirmation of smear positive TB, rapid culture to detect smear negative TB, and rapid drug susceptibility testing and drug resistance surveillance is moving to the top of the tuberculosis research agenda, along with the need for new anti-tuberculosis drugs active against XDR-TB¹⁷. Multi Drug Resistantand Advancements in research for malaria vaccines, its rapid diagnosis, and treatment are also underway¹⁸.

However, there have been challenges as well. In 2011, for example, the VOICE trial was unable to confirm the CAPRISA finding that a tenofovir-based vaginal microbicide gel could protect women from infection¹⁹. The Fem-PrEP trial results were also disappointing: the study found that pre-exposure oral ARV prophylaxis (PrEP) that worked very well in Men who have Sex with Men (MSM) appeared ineffective for heterosexual women²⁰.

The successes and setbacks of the last three years will inevitably lead to more complicated HIV prevention research and demonstration projects taking place in Africa. It will also prompt increased national and regional dialogue about the potential benefits and risks of new prevention modalities and how they might best be deployed in country-specific settings.

The 2012-2015 UNAIDS strategy for 'Getting to Zero' calls for a national transition process that will see more people getting treated and less people acquiring new HIV infections, with treatment rates outstripping the rate of new HIV infections. Doing so will require decisive action guided by a groundbreaking vision: zero new HIV infections, zero discrimination, zero AIDS-related deaths.

'Getting to Zero', has been the theme of World AIDS Day since 2010 and will remain so until 2015. This is a political decision that is reflective of the belief of HIV scientists that the end of AIDS may occur within our lifetimes. Several recent prevention and treatment advancements that provide concrete hope for the realization of this goal include: the rapid scale-up of Anti-Retroviral Therapy and prevention efforts that have saved millions of lives; HIV infection rates decreasing in many heavily affected countries; the number of AIDS-related deaths have also decreased worldwide; and, most importantly, research findings have shown that Anti-Retroviral Therapy can prevent new infections.

'Getting to Zero' new HIV infection on the African continent will not only depend on expanding antiretroviral treatment and proven HIV/AIDS-prevention tools to all people who need them, it would also require additional investment in the research and development of HIV vaccine. Efforts would also be required to ensure combination of use of known and effective HIV prevention tools, ensuring universal coverage of access and uptake of these tools, and investment in addressing structural drivers of HIV infection risk^{21,22}.

In this regard, investing in research and development of prevention tools that are appropriate for populations at high risk of HIV infection such as HIV sero-discordant couples, sex workers, people who inject drugs, and men who have sex with men, women and girls, is of great importance. Now more than ever, political will and commitment, illustrated through allocation of adequate resources, and bold action is needed to 'Get to Zero' in Africa.

Commitment of African Leaders to Addressing HIV Epidemic on the Continent

On the 15th and 16th of July 2013, African leaders met in Abuja for the Abuja +12 summit, as a follow up to the 2001 Abuja summit. The theme of the conference was: 'Ownership, Accountability and Sustainability of HIV/AIDS, Tuberculosis and Malaria in Africa: Past, Present and the Future'. Its broad objectives were to review progress on various commitments made in 2001, share

experiences on implementation in the different countries, draw lessons from these experiences, and map the way forward. At the meeting, African leaders noted that there has been tremendous progress made in addressing HIV and AIDS, and that this has resulted from the political will of leaders with strong and committed support of partners at all levels²³.

The leaders also recognized the need to accelerate the implementation and enforcement of protective laws for People Living with HIV/AIDS (PLHIVA) and vulnerable populations as well as ensuring the uptake of HIV preventive measures for these populations. The conference also took cognizance of the need for an African Centre for Disease Control and Prevention (CDC) for the conduct of life saving research for priority health problems in Africa. This African CDC, according to the leaders, will serve as a platform to share knowledge and build capacity in responding to the public health emergencies and threats.

In view of these, the leaders undertook to accelerate the implementation of the Abuja declaration, review relevant laws and policies at the national and regional levels to strengthen rights based protection for all vulnerable and key populations, increase access of young people to combination prevention programmes which are evidence driven, eliminate mother to child transmission of HIV, and promote the integration of sexual and reproductive health and rights (SRHR) and HIV/AIDS services. They also agreed to invest in tuberculosis (TB) and HIV service integration, accelerate child and adolescent access to HIV treatment, and intensify research aimed at strengthening preventive measures among others.

This paper takes a critical look at each of these commitments and makes recommendation on how to address some of the issues raised as we move towards Africa Union's target of zero new infection by the year 2030.

Laws and Policies to Strengthen Right-based Protection for all Vulnerable and Key Populations

The need for a human rights-based approach to programming has been long identified. A rightbased approach to programming recognizes the existence of rights, reinforces the capacities of duty bearers, including national governments, to respect the rights of all individuals, and promotes the enactment of laws that create mechanisms to prevent violation of rights by state authorities or by non-state actors. In addition, a right-based approach reinforces the capacities of duty bearers to fulfill the right by taking active steps to put in place institutions and procedures, including the allocation of resources to enable people to enjoy their rights²⁴.

Current efforts on the Continent are centred on the enactment of laws that prevent stigma and discrimination of people living with HIV, promote gender equity and women's empowerment, as well as review of laws that infringe on the rights of key populations. The need to enact laws to prevent stigma and discrimination is important in view of the association between stigma and increased HIV risk behaviour²⁵⁻²⁸. In addition, stigma and discrimination prevents pregnant women from participating in PMTCT^{29,30}, serves as a barrier to uptake of HIV testing^{31,32}, impedes access to and retention in HIV care³³⁻³⁵ and adherence to antiretroviral medications³⁶⁻³⁹. The persistence of HIV related stigma would also likely impact negatively on future HIV research on the African Continent with evidence suggesting poor uptake of novel biomedical HIV intervention methods due to stigma⁴⁰.

Unfortunately, current laws and policies in many countries directly contribute to and or exacerbate pre-existing stigma and discrimination associated with at-risk groups. Of the 82 countries in the world with antigay laws, 37 (45.1%) are located in Africa. The recent promulgation of the same sex marriage prohibition Act in Nigeria⁴¹ and a similar law in Uganda⁴² further heightens global, regional and national tensions on the issue of rights of homosexuals and the rights of other minority in the country. In Nigeria, there had been media and community reports of unlawful arrests and prosecution of men suspected to be gay since the promulgation of the law⁴³. Drug use and sex work are also criminalized in many African countries. These laws and policies reinforce stereotyping and status loss of persons who are infected with HIV. Laws and policies that criminalize consensual homosexual activity, prohibit syringe possession and needle exchange, and facilitate violent policing of sex workers need to be revised. Where protective legislation on HIV and AIDS discrimination is in place, support for enforcement and targeted information campaigns for stakeholders about rights afforded by such legislation should be provided.

Access of Young People to Combination Prevention Programmes

The concept of combination prevention was introduced in 2003 as a strategy for the 'use all appropriate interventions to achieve maximum effect, including behaviour change programmes, sexually transmitted disease control, voluntary counselling and testing, harm reduction, prevention of mother-to-child transmission, blood safety, infection control in healthcare, structural interventions, and programmes for people living with HIV'44.

The UNAIDS Prevention Reference Group agreed in December 2009, that combination prevention programmes would be defined as rights-based, evidence-informed, and community-owned programmes that use a mix of biomedical, behavioural, and structural interventions, prioritized to meet the current HIV prevention needs of particular individuals and communities, so as to have the greatest sustained impact on reducing new infections⁴⁵.

The 2006 AIDS epidemic Data of the UNAIDS⁴⁶, reported that provision and access to combination prevention services contributed to declining incidence of HIV. As noted by Hankins et al⁴⁴, combination prevention had been inspired by the recognition that countries such as Uganda, Thailand, and Brazil had generated sharp, sustained declines in HIV incidence using an array biomedical. behavioural. and structural approaches. Visible, consistent, political leadership and community mobilization seemed critical components of these successful national programmes, each of which had deployed strategically chosen strategies to meet the diverse needs of key populations at risk⁴⁶.

In a similar way, we note that programs to protect young people from HIV must use combination prevention approaches that are friendly to young people and must be accessed by young people. In countries with generalized epidemics, programs for young people should promote comprehensive services that include knowledge about HIV, sexuality education, access to sexual and reproductive health services and discussion on harmful sexual norms and practices.

Persistent challenges to effective prevention for adolescents and young people include inadequate access to high-quality, youthfriendly HIV and sexual and reproductive health services, and sexual violence against young women and girls⁴⁷. In addition, some young people are hindered in their ability to obtain essential services by limited protection for young people's confidentiality and right to medical privacy⁴⁸. Inadequate access to comprehensive education, shown to be effective in delaying sexual debut and increasing condom use among young people who are sexually active⁴⁹, also undermines efforts to protect young people from acquiring HIV.

Across sub-Saharan Africa, diverse countries has achieved notable reductions in HIV prevalence among young people (15–24 years).⁵¹ despite these favourable trends, HIV prevalence among young women remains more than twice as high as among young men throughout sub-Saharan Africa⁵¹, which further makes the case for combination prevention programs.

Elimination of Mother to Child Transmission of HIV

In order to prevent the needless transmission of HIV to infants, the global community has committed itself to accelerating progress for the prevention of mother-to-child transmission (PMTCT) with the goal of eliminating new pediatric HIV infections by 2015⁵². Elimination of mother to child transmission of HIV is critical to Getting to Zero New infections globally.

In 2009 alone, an estimated 400,000 children were newly infected with HIV, with 90% of infections occurring in children in sub-Saharan Africa through mother-to-child transmission (MTCT)⁵³. Without any intervention, the risk of MTCT ranges from 20% to 45%; without any treatment, half of the babies will die before their second birthday. About 42,000 to 60,000 of pregnant women die from HIV annually. In

contrast, in high-income countries, the number of new infections among children as well as the number of maternal and child deaths due to HIV are virtually zero⁵².

MTCT threatens Africa's future generation and has a huge impact on broader maternal and child healthcare. The potential for eliminating MTCT to have profound impact on the HIV epidemic and broader maternal and child health is now more compelling. Scaling up an effective MTCT elimination global approach can reduce rates of transmission to less than 5% annually, and avert more than one million new HIV infections among children by 2015, while at the same time improving overall maternal and family health⁵². As outlined within the Global Action Plan towards Eliminating New HIV Infections among Children by 2015 and Keeping their Mothers Alive⁵² EMTCT activities focus specifically strengthening activities to prevent HIV infection among women and their partners, expanding efforts to reach men and to reduce the stigma of the disease in both rural and urban communities as well as ensuring access to anti-retroviral (ARV) treatments for every HIV positive woman and her partner. EMTCT activities also seek to strengthen linkages that support safe motherhood and reduction of unintended pregnancies among women living with HIV/AIDS, as well as expand access to enhanced quality of service delivery.

Africa bears the brunt of the new HIV infections among children and urgent steps need to be taken to accelerate the implementation of the African Plan towards the Elimination of New HIV Infections among Children by 2015 and keeping mothers alive in order to make EMTCT a reality in our generation.

Integrated Sexual and Reproductive Health and HIV/AIDS Services

The connection between sexual and reproductive health and rights (SRHR) and HIV/AIDS is undeniable; the majority of infections are sexually transmitted⁵⁴. Biologically, women are more vulnerable to HIV infection during heterosexual sex than men, and they often have less power to refuse sex or negotiate condom use. Poverty, gender inequality, and social marginalization are

factors that contribute to both HIV/AIDS and poor reproductive health⁵⁵.

Existing evidence⁵⁶ provides support for integrating SRHR and HIV/AIDS services, which is an important part of the global response to HIV and SRHR. Integrated approaches can increase access to component services, reduce clinic-based stigma (by delivering HIV care in more generalist contexts), increase client satisfaction and even impact positively on outcomes such as condom use, unintended pregnancies and perinatal HIV infection^{57,58}.

Likewise, increased access to information about HIV among those receiving sexual reproductive health services can help to curb sexually transmitted HIV infection. Overall, integration makes for more efficient and effective use of resources to address clients' health needs and increases access to both types of services ^{57, 58}. One of the most important advantages to integrating family planning and HIV services is the potential contribution of contraception to preventing HIV-positive births, which has been well established through extensive research ⁵⁸⁻⁶³.

At a minimum, integration involves setting up systems for mutual referrals and communication, so that women and men who access HIV/AIDS services are referred to appropriate SRHR services, and vice versa⁵⁶. Integration may also involve developing dual-purpose interventions and integrating services. For example: Adding voluntary counseling and testing for HIV to SRHR services; Introducing SRHR services to ART and PMTCT services⁵⁶.

SRHR and HIV integration in Africa however, faces a myriad of challenges one of which is siloed funding streams that lack flexibility⁵⁷. Traditionally, public health funding silos have created barriers for integrated service delivery in health care settings. Kenya's 2009 National Reproductive Health and HIV and AIDS Integration Strategy⁶⁴ reflects the influence of US government funding decisions as a determinant of how the country could address its HIV prevention needs: the U.S. Agency for International Development (USAID), Kenya, one of the leading supporters for the Kenyan population programme, cut its support for family planning by one-third from 1995 to 2002, while increasing its funding

for the HIV and AIDS programme six fold. In 2004, USAID budgeted US\$35 million for HIV and AIDS and US\$6 million for family planning in Kenya⁶⁴. African governments should draw lessons from such missed opportunities and intensify SRHR and HIV integration in their countries.

Tuberculosis and HIV Service Integration

Tuberculosis (TB) and HIV/AIDS, which often occur as "Two diseases in one patient" are a deadly duo. In high-burden countries, people living with HIV are 20 times more likely to contract TB than those who are HIV negative. HIV is the main reason for failure to meet TB control targets in high HIV settings. On the other hand, TB bacteria can hasten the progression of an HIV infection, causing patients to fall sick more quickly⁶⁵.

TB is the leading cause of death among people living with HIV especially in sub-Saharan Africa, where it causes up to half of all AIDS related deaths. TB-HIV co-infections are also on the rise in other areas of the world, particularly Western Asia including China, and Eastern Europe. As long as HIV continues to spread, TB will remain a constant and deadly threat. In addition the rising incidence in cases of Multi-Drug Resistant (MDR-TB) in sub-Saharan Africa is posing a major challenge in the management of TB.

Sub-Saharan Africa bears the brunt of the HIV fuelled TB epidemic. Of the 34 million people living with HIV across the world at the end of 2011, 69% live in Africa. Around 1 in 20 adults in Africa are living with HIV. Africa also carries a large burden of the TB disease with 30% of the approximately 9 million new TB cases each year and 9 of the 22 most affected countries (TB high burden) are African countries (South Africa, Ethiopia, Kenya, Mozambique, Nigeria, Uganda, DRC, Tanzania and Zimbabwe) ⁶⁶.

In order to control TB in high HIV settings, the Stop TB strategy includes collaborative TB/HIV activities. These collaborative TB/HIV activities have the objectives of creating the mechanism of collaboration between TB and HIV/AIDS programmes, reducing the burden of TB among

people living with HIV and reducing the burden of HIV among TB patients.

While some progress has been made in ensuring integration of TB/HIV services, Africa is not yet on track to meet the goal of halving TB mortality from 1990 to 2015. Access to prevention, diagnosis and treatment of TB for people living with HIV remains a considerable challenge in many parts of Africa. Another major challenge identified by the World Health Organisation (WHO) is the rise in the number of multi-drug resistant TB cases in the AU Member States. In the case of MDR-TB, there is limited availability of medical equipment for effective screening, limited treatment options and the treatment is extensive, costly, not widely available and causes serious side-effects in patients. In addition, there is also the growing challenge posed by extensive drug-resistant TB (XDR-TB) which responds to even fewer available drugs, including the most effective second-line drugs. There is also an urgent need to focus on TB diagnosis and management in vulnerable populations particularly women and children. Building capacity and adequate facilities for the detection and monitoring of drug resistant TB (MDR and XDR) and ensuring availability of resources to provide treatment and care support for detected cases is of utmost priority.

The need to accelerate progress in ensuring TB/HIV integration is an urgent requirement as we work towards the attainment of Zero AIDS related deaths. However, in implementing effective TB/HIV integration strategies, actors must also work in partnership with patient groups and communities and adopt patient centered approaches for service provision in order to achieve meaningful progress.

Child and Adolescent Access to HIV treatment

Treatment-eligible children living with HIV in Sub-Saharan Africa are only about half as likely to receive antiretroviral therapy as HIV-positive adults ^{67,68}. In nine of the 21 sub-Saharan African countries prioritized by the Global Plan towards the Elimination of New HIV Infections among Children and Keeping Their Mothers Alive, 25%

or fewer children eligible under the 2010 WHO guidelines actually received antiretroviral therapy in 2012^{67,68}. When comparing the number of children receiving antiretroviral therapy in 2012 to the potential eligible under the new WHO guidelines in 2013, it is evident that paediatric coverage is exceptionally low.

Adolescents (10-19 years) are the only age group in which AIDS-related deaths increased between 2001 and 2012. From 2005 to 2012, the annual number of AIDS- related deaths among adolescents almost doubled⁶⁹. The inability of adolescents to benefit equally from treatment underscores the need for more HIV testing and counselling among this age group and for adolescent-friendly health services. The world is within reach of providing antiretroviral therapy to 15 million people by 2015⁷⁰. Yet, within the scope of this achievement, adolescents and youth remain underserved. It is critical for adolescents and youth to know their HIV status and to be linked to appropriate care and treatment if diagnosed with HIV.

In Africa, a majority of adolescents and youth living with HIV are unaware of their status. In a study of nine of the highest prevalence countries - Kenya, Lesotho, Mozambique, Namibia, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe - less than 20% of adolescent boys and 30% of girls have been tested and know their HIV status⁷¹. This may be due to a number of factors including inadequate access and utilization of overall health services, and national guidelines that limit the ability of adolescents to independently access HIV testing and counselling⁷².

We note that linkages to care for adolescents who test positive are weak⁶⁹, but even when linked to care services, retention in care of adolescents living with HIV is poor⁷¹. Late diagnosis of HIV infection is increasingly being recognized as a significant problem with regard to adolescents living with HIV, leading to delayed initiation of ART and poor linkages to and retention in care⁶⁹, which can lead to compromised treatment outcomes, premature deaths and risk of onward transmission. Adolescents also have adherence rate when on ART⁷². Given the poor accessibility to second line ART, maintaining adherence to ART is one of the most significant

problems for optimizing health outcomes in young people living with HIV.

Research on Preventive Measures

Until recently, HIV prevention lacked credibility with data from prevention trials showing little or no decrease in incidence of HIV/AIDS⁷³. The promise of the recent scientific breakthroughs has marked the end of a steady stream of disappointing results. This has dramatically changed the public perception and the opinions of policy makers. The discourse on HIV prevention now includes the possibility that the epidemic can be stopped⁷⁴.

Scarce financial resources also drive this renewed focus on prevention, with resources for prevention levelling off in the past decade and future funding commitments unclear. These reductions put many HIV prevention programmes at risk, and have put pressure on prevention programmes to be more accountable by providing clearer evidence of impact and delivering better value for money.

It is imperative that African leaders intensify funding for prevention research to meet the pressure and demand for clearer evidence. In the absence of a cure, prevention is currently the biggest hope of reversing AIDS. This will require intensifying the scale and scope of HIV-prevention measures that have been shown to work. The recent breakthroughs in HIV prevention research have confirmed the promise of new options to help end the AIDS epidemic and highlight the urgent need for ongoing research to develop additional prevention options and support rapid rollout of proven ones. Continued progress in HIV prevention research will require unprecedented political will by African leaders to prioritize research and a broader base of funders committed to sustained support.

Recommendations

Allocate at least 15% of national budgets to health and step up domestic resource mobilization

In April 2001, heads of state of African Union countries met and pledged to set a target of

allocating at least 15% of their annual budget to improve the health sector. At the same time, they urged donor countries to fulfil the yet to be met target of 0.7% of their GNI as official development assistance to developing countries⁷⁵. By the end of 2011, only Rwanda and South Africa have achieved the Abuja Declaration target of committing at least 15% of national budget to health. Seven other countries had reduced their relative contributions of government expenditures to health during the period while in 12 others, there was no obvious upwards or downwards trends reported. Twenty-seven other countries had increased the proportion of total government expenditures allocated to health⁷⁵.

While the success of the 2001 Declaration of committing 15% to health was premised on the need for donor countries to meet their target of 0.7% of their GNI as official development assistance, it is becoming clearer that the capacity of the donor countries to fulfil this obligation is getting thinner especially following the global financial crisis. By 2009, only five countries reached 0.7% of GNI devoted to namely development assistance Denmark, Luxembourg, Netherlands, Norway and Sweden. The overall ODA has actually decreased since 2001^{75} .

In effect, the African governments would need to look inwards to raise the needed funds to meet the health needs of its citizens. Domestic investment in health, including the HIV response needs to improve. The current donor dependency syndrome in the HIV response field needs to gradually reverse. This would require efforts at increasing the efficiency in and equitable domestic health spending⁷⁶, and increased allocation of aids resources for improvement of health and wellbeing of citizens⁷⁵. Domestic health spending can be made more efficient by compulsory prepayment through general taxation compulsory or contributions to health insurance schemes⁷⁵.

While these efforts alone may not enable Africa countries to reach achieve universal access to health, it would significantly increase the government's response to the health needs of its citizens. The shrinking international response and commitments to HIV resulting from the uncertain global economic crisis and donor fatigue means

that national Governments will need to take more fiscal responsibility for HIV.

Increase Funding for Research and Development

It is imperative for African governments to invest in HIV research and development efforts. Research is needed to provide the evidence for the design and implementation of cost effective responses. For the HIV response in Africa, the need to develop new HIV prevention strategies is important as this would help increase the range of tools and options available for HIV prevention. An environment of political, social, and economic instability, have all contributed to the scarcity of scientific research in Africa. The dearth of research conducted in Africa for Africa is untenable⁷⁷ and threatens the long-term sustainability of any disease control programme.

Inequalities in health research contribute to inequalities in health and ultimately wealth. Some countries, such as Brazil and the People's Republic of China, have made remarkable progress, in part because their governments have invested substantially in health research and capacity building⁷⁸. For Africa, the call to allocate at least 2% of national health expenditure and at least 5% of external aid for health projects to research and research capacity building in line with the Bamako Declaration 79 is an effort in the right direction. A commitment to fulfilling that declaration would result in African governments developing more evidence based policy, development of robust ethical and regulatory frameworks of standards to protect their populations from harm and to promote public trust in research, and the creation of regional alliances and centres of excellence to assist in strengthening research for health capacity on the continent. This is obviously borne out of the recognition of the importance of adopting sound policies on health research and the potential positive implications such policies may have on the health and development of their nations⁷⁹.

The commitment of the Africa leaders at the Abuja+12 Summit to the development of an African CDC to conduct life saving research for priority health problems in Africa and to serve as a platform to share knowledge and build capacity in responding to the public health emergencies

and threats is an additional step towards addressing the goals of the Bamako Declaration. However, the current pace of in-country fulfillment of the commitment is slow and at a pace that does little to address the health research needs of countries on the continent. While South Africa, Benin, Egypt, and Mauritius have done reasonably well regarding national investment and productivity in science and technology, there is however, no nation in Africa that has made a clear commitment to meet the resolutions in the Bamako Declaration⁷⁹.

Accelerate Research and Development of HIV Prevention Tools

The successes with the development of new biomedical HIV prevention tools such as medical male circumcision, use of systemic and topical antiretroviral for HIV prevention, and evidence for improved impact on the HIV epidemic with use of these existing and new tools in combination⁸⁰ are evidences to justify the continued investment in the research and development of new HIV prevention tools. Continued support for investment in the development of vaginal and rectal microbicide are both critical and essential in view of the high risk associated with sexual transmission of HIV for women through vaginal sex81, and the significant high risk for HIV infection through anal sex for both men and women⁸². The various studies looking at the delivery of topical antiretrovirals in the form of gels, rings and films⁸³ and the research into the development of long acting PrEP in the form of intra-dermal injections or subcutaneous patches⁸⁴ are welcome developments. So also is the development of non-ARV based microbicides in view of the need for people living with HIV to also be able to access tools that can reduce their risk for re-infection with new HIV strains.

The support for the development of a HIV vaccine in an effort to end the HIV epidemic is needed now more than ever⁸⁵. The world needs both a therapeutic vaccine and the preventive vaccine just as much as we need more investment in the HIV cure research. While these researches would take many more years for results to evolve, increasing national investment into the various

forms of researches that are critical for the preparing ground for direct research implementation or preparing grounds for the smooth roll out of these research products are needed now.

Proactively Develop Policies and Agreements on Intellectual Property

It is imperative that African governments proactively develop policies and agreements on intellectual property that will accelerate access to and delivery of newly found efficacious products for treatment and prevention. The WHO Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property⁸⁶ urges governments to "consider, whenever necessary, adapting national legislation in order to use to the full the flexibilities contained in the Agreement on Trade-Related Aspects of Intellectual Property Rights, including those recognized by the Doha Declaration on TRIPS Agreement and Public Health and the WTO decision of 30 August 2003⁸⁷.

While acknowledging that prices are influenced by a variety of factors, we note that cost remains one of the barriers to increasing access to treatment and care services. The 2006 Political Declaration on HIV/AIDS commits United Nations Member States to "finding solutions to overcome barriers in pricing, tariffs and trade agreements and to making improvements to legislation, regulatory policy, procurement and supply chain management in order to accelerate and intensify access to affordable and quality HIV/AIDS prevention products, diagnostics, medicines and treatment commodities" 188.

Create Opportunities for Sharing Expertise and Lessons Learned from Research

Africa has continued to lag behind in scientific research to contribute meaningfully to social and economic development African governments should therefore create spaces/platforms for African scientists to increase their productivity and relevance to needs of local health systems. It is imperative that south-south scientific cooperation be strengthened. The collaboration should be aimed at strengthening Africa's capacity to

conduct scientific research to solve health problems confronting the people of Africa.

Funds, specifically allocated by Parliament, to support essential national health research are essential. In addition, African governments should run regular workshops on research methodology and data analysis for multidisciplinary teams of researchers at district level to provide them with enhanced skills for conducting health research. Research findings should be disseminated to peers, policy-makers, and members of the public through forums such as an annual open days and national scientific conferences in conjunction with local universities and research organizations. Members of the public should be invited to discuss research questions and findings.

Conclusion

The Civil Society in Africa are committed to using existing structure and mechanisms at its disposal to support and strengthen African leadership's involvement in HIV prevention research and development by mobilising communities to access services and contributing to the provision of prevention, treatment, care and support services; promoting human rights and access to essential medicines for all by advocating for rights and evidence-based policies on health and for mechanisms to strengthen health systems in acting as a watchdog to ensure accountability, good governance and efficient management of programmes resources for all stakeholders, including civil organisations; and encouraging governments, citizens, development partners and the private sector to contribute significantly to funding health and research and development interventions. The Africa HIV response needs to be driven by evidence derived from research. The Continent also needs continental led investment in the development of new HIV prevention tools in addition to learning how to facilitate uptake and use of existing tools. Committing to the implementation of the Bamako Declaration is one step in this direction.

Acknowledgement

The authors duly acknowledge the contribution of

the BIARI programme of the Brown University, Rhonde Island, USA for their contribution to making this publication possible.

Contribution of Authors

MOF conceived the idea of the paper. RM, MOF and OA collected the papers needed for the writing of the manuscript/ RM led the process of putting the manuscript together. All authors were engaged in the preparation of the manuscript and gave final consent to its publication.

References

- Abdool Karim Q, Abdool Karim SS, Frohlich JA, et al. Effectiveness and safety of tenofovir gel, an antiretroviral microbicide, for the prevention of HIV infection in women. Science. 2010; 329(5996):1168-1174.
- Grant, RM, Lama JR, Anderson PL, et al. Pre-exposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men. New England Journal of Medicine 2010; 363(27): 2587-2599.
- Baeten, JM, Donnell D, Ndase P, et al. Antiretroviral Prophylaxis for HIV Prevention in Heterosexual Men and Women. New England Journal of Medicine 2012;367(5):399-410.
- Thigpen, MC, Kebaabetswe PM, Paxton LA, et al. Antiretroviral Preexposure Prophylaxis for Heterosexual HIV Transmission in Botswana. New England Journal of Medicine 2012; 367(5):423-434.
- Choopanya K, Martin M, Suntharasamai, et al, for the Bangkok Tenofovir Study Group. Antiretroviral prophylaxis for HIV infection in injecting drug users in Bangkok, Thailand (the Bangkok Tenofovir Study): a randomised, double-blind, placebo controlled phase 3 trial. Lancet 2013; 381(9883):2083-2090.
- Cohen, MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 Infection with Early Antiretroviral Therapy. New England Journal of Medicine 2011; 365(6): 493-505.
- Auvert B, Taljaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R, Puren A. Randomised, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265Trial. PLoS Med. 2005; 2(11):e298. Epub 2005 Oct 25.
- 8. Gray RH, Kigozi G, Serwadda D, et al Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. Lancet. 200; 369(9562):657-666.
- 9. Bailey RC, Moses S, Parker CB, Agot K, Maclean I, Krieger JN, Williams CF, Campbell RT, Ndinya-Achola JO. Male circumcision for HIV prevention in young men in Kisum, Kenya: a randomised controlled trial. Lancet. 2007; 369(9562):643-656.
- 10. World Health Organisation. Progress in scaling up voluntary medical male circumcision for HIV

- prevention in East and Southern Africa: January December, 2011. http://www.malecircumcision.org/country_updates/documents/FINAL% 20VMMC% 20P rogress% 20Report% 20Jan-Dec% 202011% 20WHO. pdf. Accessed 12th April, 2014.
- What is IPrEx OLE. http://www.iprexole .com/ 1 pages/ aboutus/aboutus-whatisiprexole.php. Accessed 5th November, 2011.
- Press Release. SFDPH to Launch PrEP Demonstration Project for HIV Prevention. http://www.iprexnews. com/content/whatisnew.html. Accessed 5th November .2012
- Partners Demonstration Project. http://depts. washington.edu/uwicrc/research/studies/demo. html. Accessed 16th February, 2014.
- Facts Consortium. FACTS 001b Study. http://www.factsconsortium.co.za/?page_id=83. Accessed 12th April 2014
- 15. World Health Organisation. Next steps 1% Tenofovir Gel. Department of Reproductive Health and Research. Johannesburg, South Africa. 25–26 August 2010. http://www.who.int/reproductivehealth/topics/rtis/WH O_UNAIDS_Next_steps_tenofovir_gel_Ex_sum.pdf. Accessed 12th April, 2014.
- 16. Andrews JR, Shah NS, Gandhi N, Moll T, Friedland G; Tugela Ferry Care and Research (TF CARES) Collaboration. Multidrug-resistant and extensively drug-resistant tuberculosis: implications for the HIV epidemic and antiretroviral therapy rollout in South Africa. J Infect Dis. 2007;196 Suppl 3:S482-S490.
- 17. Fauci AS; NIAID Tuberculosis Working Group.

 Multidrug-resistance and extensively drug-resistant tuberculosis: the National Institute of Allergy and Infectious Diseases Research agenda and recommendations for priority research. J Infect Dis. 2008; 197(11): 1493-1498.
- Schwartz L, Brown GV, Genton B, Moorthy VS. A review of malaria vaccine clinical projects based on the WHO rainbow table. Malar J. 2012;11:11. doi: 10.1186/1475-2875-11-11.
- Marrazzo J, Ramjee G, Nair G, Palanee T, Mkhize B, et al. Pre-exposure Prophylaxis for HIV in Women: Daily Oral Tenofovir, Oral Tenofovir/Emtricitabine, or Vaginal Tenofovir Gel in the VOICE Study (MTN 003). 20th Conference on Retroviruses and Opportunistic Infections, Atlanta, GA, March 3–6, 26LB. 2013.
- Van Damme L, Corneli A, Ahmed K, et al. Pre-exposure Prophylaxis for HIV Infection among African Women. New Engl J Med 2012; 367: 411-422
- 21. Joint United Nations Programme on HIV/AIDS (UNAIDS). Combination HIV prevention: tailoring and coordinating biomedical, behavioural and structural strategies to reduce new HIV infections: a UNAIDS discussion paper. http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2010/JC2007_Combination_Prevention_paper_en. pdf. Accessed 12th April, 2014.

- Kippax S. Effective HIV prevention: the indispensable role of social science. J Int AIDS Soc. 2012; 15(2):17357. doi: 10.7448/IAS.15.2.17357.
- Declaration of the Special Summit of the African Union on HIV/AIDS, Tuberculosis and Malaria. http:// abujaplus12.org/abuja12-summit-declaration/ accessed 12 April, 2014.
- 24. UNFPA. The human right based approach. http:// www.unfpa.org/rights/approaches.htm. Accessed 12th April 2014.
- Chen J, Choe MK, Chen S, Zhang S. Community environment and HIV/AIDS related stigma in China. AIDS Educ Prev. 2005;17:1–11.
- 26. Liu H, Hu Z, Li X, et al. Understanding the interrelationships among HIV-related stigma, concern about HIV infection, and intent to disclose HIV serostatus: a pretest-posttest study in a rural area of Eastern China. AIDS Patient Care & STDs. 2006;20:133–142.
- 27. Simbayi LC, Kalichman SC, Strebel A, et al. Disclosure of HIV status to sex partners and sexual risk behaviours among HIV-positive men and women, Cape Town, South Africa. Sex Transm Infect. 2007;83:29–34.
- Peretti-Watel P, Spire B, Obadia Y, et al. Discrimination against HIV-infected people and the spread of HIV: some evidence from France. PLoS One. 2007;2:e411.
- Varga CA, Sherman GG, Jones SA. HIV-disclosure in the context of vertical transmission: HIV-positive mothers in Johannesburg, South Africa. AIDS Care. 2006; 18:952–960.
- Eide Mhyre M, Lindbaek M, et al. Social consequences of HIV-positive women's participation in prevention of mother-to-child transmission programmes. Patient Educ Couns. 2006;60:146–151
- Obermeyer CM, Obsorn M. The utilization of testing and counseling for HIV: a review of the social and behavioral evidence. APJH. 2007;97:1762–1774.
- Pool R, Nyanzi S, Whitworth JAG. Attitudes toward voluntary counseling and testing for HIV among pregnant women in rural south-west Uganda. AIDS Care. 2001;13:605

 –615.
- 33. Kinsler JJ, Wong MD, Sayles JN, et al. The effect of perceived stigma from a healthcare provider on access to care among a low-income HIV-positive population. AIDS Patient Care & STDs. 2007;21:584– 592
- 34. Rajabiun S, Mallinson RK, McCoy K, et al. Getting me back on track: the role of outreach interventions in engaging and retaining people living with HIV/AIDS in medical care. AIDS Patient Care & STDs. 2007;21 (Suppl 1):S20–S29.
- Reif S, Golin CE, Smith SR. Barriers to accessing HIV/AIDS care in North Carolina: rural and urban differences. AIDS Care. 2005;17:558–565.
- Rao D, Kekwaletswe TC, Hosek S, et al. Stigma and social barriers to medication adherence with urban youth living with HIV. AIDS Care. 2007;19:28–33.

- Ware NC, Wyatt MA, Tugenberg T. Social relationships, stigma, and adherence to antiretroviral therapy for HIV/AIDS. AIDS Care. 2006;18:904–910.
- Rintamaki LS, Davis TC, Skripkauskas S, et al. Social stigma concerns and HIV medication adherence. AIDS Patient Care & STDs. 2006;20:359– 368.
- 39. Sayles JN, Wong MD, Cunningham WE. The inability to take medications openly at home: does it explain gender disparities in HAART use? J Women's Health (Larchmt) 2006;15:173–181.
- 40. Mahajan AP, Sayles JN, Patel VA, Remien RH, Sawires SR, Ortiz DJ, Szekeres G, Coates TJ. Stigma in the HIV/AIDS epidemic: a review of the literature and recommendations for the way forward. AIDS. 2008; 22:S67-S79.
- 41. The Federal Republic of Nigeria. Same sex (marriage) prohibition Act. 2013.
- 42. GayStarNews. Two Nigerians acquitted by Islamic court over gay sex allegations. Available at http://www . gaystarnews.com/article/two-nigerians-acquittedislamic-court-over-gay-sex-allegations020414# sthash.jF1LqRCp.dpuf Accessed 5th July, 2014.
- 43. Taylor A. Meet the first man to come out as gay on Nigerian television. The Washington Post. April 15th 2014. Available at http://www. Washingtonpost . com/blogs/worldviews/wp/2014/04/15/meet-the-first-man-to-come-out-as-gay-on-nigerian-television/. Accessed on 5th July, 2014.
- 44. Global HIV Prevention Working Group. Access to HIV prevention: closing the gap; 2003. http://www.globalhivprevention.org/pdfs/Funding%20Report%20 FINAL.pdf. Accessed 31 March 2014.
- 45. UNAIDS. Combination Prevention: strategic HIV prevention programmes founded on good practice. A background paper for the UNAIDS Prevention Reference Group Meeting; 3–5 December 2009. Geneva: UNAIDS; 2009.
- 46. UNAIDS. AIDS epidemic update. Geneva: Joint United Nations Programme on HIV/AIDS; 2006.
- 47. Hankins CA, de Zalduondo BO. Combination prevention: a deeper understanding of effective HIV prevention. AIDS 2010; 24: S70–S80.
- 48. Jewkes R, Dunkle K, Nduna M, Shai N. Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. Lancet 2010. 376(9734): 41 48.
- Jewkes R, Dunkle K, Nduna M, Shai N. Factors associated with HIV sero-status in young rural South African women: connections between intimate partner violence and HIV. Int J Epidemiology 2006; 35: 1461-1468.
- 50. Binagwaho A, Fuller A, Kerry V, Dougherty S, Agbonyitor M, Wagner C, Nzayizera R, & Farmer P. Adolescents and the right to health: Eliminating agerelated barriers to HIV/AIDS services in Rwanda. AIDS Care 2012. 24 (7): 936–942.
- 51. Global HIV Prevention Working Group. Access to HIV prevention: closing the gap; 2003. http://www.

- globalhivprevention.org/pdfs/Funding%20Report%20 FINAL.pdf. Accessed 28 March 2014.
- UNAIDS. Global Plan Towards the Elimination of New HIV Infections among Children by 2015 and Keeping their Mothers Alive. UNAIDS 2011.
- UNAIDS. Report on the Global AIDS Epidemic. UNAIDS 2010. http://www.unaids.org/documents/ 20101123_GlobalReport_em.pdf. Accessed 28th March 2014.
- United Nations Population Fund. Reproductive health in refugee situations. An inter-agency field manual. UNFPA 1999: http://www.unfpa.org. Accessed 28th March 2014
- 55. World Health Organization. Glion consultation on strengthening the linkages between reproductive health and HIV/AIDS: Family planning and HIV/AIDS in women and children. WHO 2006: http://www.who.int. Accessed 28th March 2014.
- Church K, Mayhew SH. Integration of STI and HIV prevention, care, and treatment into family planning services: a review of the literature. Stud Fam Plan 2009; 40:171–186.
- Barroso C, Sippel S. Sexual and Reproductive Health and Rights: Integration as a Holistic and Rights-Based Response to HIV/AIDS. Women's Health Issues 2011: 21-6S; S250–S254.
- 58. Church K, Lewin S. Delivering integrated HIV services: time for a client-centred approach to meet the sexual and reproductive health needs of people living with HIV? AIDS. 2010; 24 (2):189–193.
- 59. Johnson K, Ilona V, Paul A. Integration of HIV and Family Planning Health Services in Sub-Saharan Africa: A Review of the Literature, Current Recommendations, and Evidence from the Service Provision Assessment Health Facility Surveys. DHS Analytical Studies No. 30. Calverton, Maryland, USA 2012: ICF International.
- 60. Hladik W, Stover J, Esiru G, Harper M, & Tappero J. The contribution of family planning towards the prevention of vertical HIV transmission in Uganda. PloS one 2009: 4(11), e7691.
- 61. Reynolds HW, Steiner MJ, Cates W Jr. Contraception's proved potential to fight HIV. Sex Transm Infect 2005: Apr;81(2):184-185.
- Reynolds HW, Janowitz B, Homan R, Johnson L. The value of contraception to prevent perinatal HIV transmission. Sex Transm Dis 2006: Jun; 33(6): 350-356.
- 63. Reynolds H, Toroitich-Ruto C, Nasution M, Beaston-Blaakman A, Janowitz B. Effectiveness of training supervisors to improve reproductive health quality of care: a cluster- randomized trial in Kenya. Health Policy Planning 2008. Jan; 23(1): 56-66. Epub 2007 Oct 17.
- 64. Ministry of Public Health and Sanitation and Ministry of Medical Services, Republic of Kenya. (2009). National Reproductive Health and HIV and AIDS Integration Strategy. http://pdf.usaid.gov/ pdf_docs/PNADX858.pdf. 2009. Accessed 1st April 2014.

- TB Alliance. TB and HIV/AIDS. Available at http://www.tballiance.org/why/tb-hiv.php. Accessed on 5th July, 2014.
- 66. Implementation of the Abuja Call or Accelerated Action Towards Universal Access to HV/AIDS, Tuberculosis and Malaria Services Progress Report 2010 -2012
- 67. UNAIDS. Access to Antiretroviral Therapy in Africa. Status Report on Progress Towards the 2015 Targets. UNAIDS 2013. http://www.unaids.org /en/media/ unaids/contentassets/documents/unaidspublication/20 13/20131219_AccessARTAfricaStatusReportProgress towards2015Targets_en.pdf. Accessed 1st April 2014
- WHO. Global update on HIV Treatment 2013: Results, Impact and Opportunities. WHO 2013.
- UNAIDS and WHO. HIV and Adolescents: Guidance for HIV testing and counselling and care for adolescents living with HIV. WHO 2013.
- UNAIDS. Report on global AIDS epidemic 2013. Geneva: UNAIDS; 2013 (http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2013/gr201 3/UNAIDS_Global_Report_2013_en.pdf. Accessed on 2nd April 2014.
- 71. United Nations Children's Fund, Towards an AIDS-Free Generation Children and AIDS: Sixth Stocktaking Report, 2013, UNICEF, New York, 2013. http://www.childrenandaids.org/files/str6_full_report_29-11-2013.pdf. Accessed 7th April 2014.
- 72. Nachega J, Hislop M, Nguyen H, et al. Antiretroviral Therapy Adherence, Virological and Immunological Outcomes in Adolescents Compared with Adults in Southern Africa. J. Acquir. Immune Defic. Syndr. 2009; 51(1):65-71.
- Padian NS, McCoy SI, Balkus JE, Wasserheit JN. Weighing the gold in the gold standard: challenges in HIV prevention research. AIDS. 2010;24: 621–635.
- Cohen J. Anti-HIV pill protects against AIDS. Science NOW. Nov 23, 2010. http://news. sciencemag. Org / health/2010/11/anti-hiv-pill-protects-against-aids. Accessed 9th April 2014.
- World Health Organisation. The Abuja Declaration: ten years on. http://www.who.int/ healthsystems/ publications/Abuja10.pdf. Accessed 16th February, 2014.
- 76. The world health report Health systems financing: the path to universal coverage. http://www.who.int/entity/whr/2010/whr10_en.pdf?ua=1. Accessed 16th February, 2014
- 77. Volmink J, Dare L. Addressing inequalities in research capacity in Africa. BMJ. 2005;331:705–706.
- 78. Osei-Atweneboana MY; Lustigman S, Prichard RK, Boatin BA, Basanez MG. A research agenda for helminth diseases of humans: health research and capacity building in disease-endemiccountries for helminthiases control. PLos Negl Trop Dis. 2012;6(4): e1602. doi:10.1371/journal.pntd. 0001602. Epub 2012

- Apr 24.
- 79. The Bamako call to action: research for health. The Lancet 2008; 372 (9653): 1855doi:10.1016/S0140-6736(08)6178.
- 80. Laeyendecker O, Piwowar-Manning E, Fiamma A, et al. Estimation of HIV incidence in a large, community-based, randomized clinical trial: NIMH project accept (HIV Prevention Trials Network 043). PLoS One. 2013 Jul 11;8(7):e68349. doi: 10.1371/journal.pone 0068349
- Henry K. Documented male-to-female transmission of HIV-1 after minimal vaginal exposure in the absence of other cofactors for infection. Minn Med. 1991; 74 (10):32-34.
- 82. Baggaley RF, White RG, Boily MC: HIV transmission risk through anal intercourse: systematic review, meta-analysis and implications for HIV prevention. *Int J Epidemiol.* 2010; 39:1048-1063.
- 83. Ferguson LM, Rohan LC. The importance of the vaginal delivery route for antiretroviral in HIV prevention. Ther Deliv. 2011; 2(12):1535-1550.
- 84. Spreen WR, Margolis DA, Pottage JC Jr. Long-acting injectable antiretrovirals for HIV treatment and prevention. Curr Opin HIV AIDS. 2013; 8(6):565-571.
- 85. Fauci AS, Marston HD. Ending AIDS--is an HIV vaccine necessary? N Engl J Med. 2014 Feb 6;370(6):495-8. doi: 10.1056/NEJMp1313771.
- 86. WHO. Global strategy and plan of action on public health, innovation and intellectual property. WHO 2011. http://www.who.int/phi/publications/Global_Strategy_ Plan_Action.pdf. Accessed 9th April 2014
- 87. World Health Organization (WHO). Improving access to medicines in Thailand: the use of TRIPS flexibilities: report of a WHO mission, Bangkok, 31 January to 6 February 2008. Geneva, WHO 2008b. http://www.moph.go.th/hot/THAIMissionReport% 20FINAL15feb 08.pdf. Accessed 9th April 2014
- 88. UNAIDS. Political declaration on HIV/AIDS. General Assembly Resolution 60/262, Article 20. Paragraph 42. Geneva, UNAIDS, 2006. http://data.unaids. org/ pub/Report/2006/20060615_HLM_Political Declaration_ARES60262_en.pdf. Accessed 9th April 2014
- 89. Habte D. Building and strengthening research capacity in health: the challenge to Africa. J Diarrhoeal Dis Res 1992; 10: 73-78.
- Council on Health Research for Development. Essential national health research and priority setting: lessons learned. Geneva: Council on Health Research for Development, 1997.
- Chandiwana SK, Shiff CJ. Science-based economic development—the Eureka factor. Zimbabwe Sci News 1999; 33: 5-11.